

REMARKS

Claim 8 is rejected as being improperly dependent upon multiply depending Claim 6. Claims 6, 19, 20, 24, and 25 are rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter of the invention. Claims 6, 19, 20, 24 and 25 have been canceled. Accordingly, it is assumed that the foregoing rejections will be withdrawn.

Claims 1, 3, 4, 10, 11 and 12 are rejected under 35 U.S.C. § 103(a) as being anticipated by Forehand *et al.* (US 5,847,936). Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being anticipated by Kurokawa (US 5,291,064). Claim 5 is rejected under 35 U.S.C. § 103(a) as being anticipated by Forehand *et al.* (US 5,847,936). Claims 5, 7, 8, 9 and 14 are rejected under 35 U.S.C. § 103(a) as being anticipated by Kurokawa (US 5,291,064). Claims 1, 3, 4, 6, 10-13, 15 and 16 are rejected under 35 U.S.C. § 103(a) as being anticipated by Honda (US 2002/0121689). Claims 17, 18, 21, 23, 26 and 27 are rejected under 35 U.S.C. § 103(a) as being anticipated by Honda (US 2002/0121689). Claims 17, 21, 22 and 23 are rejected under 35 U.S.C. § 103(a) as being anticipated by Kurokawa (US 5,291,064).

Claims 1-27 have been canceled, rendering moot the foregoing rejections under 35 U.S.C. § 103(a).

Forehand *et al.* describe the printed circuit board of their invention: Printed circuit board 220 includes a plurality of electrically insulating layers 231-235 which are interleaved with a plurality of electrically conductive layers 241-244 (Col. 3, lines 46-48).

Kurokawa describes a packaged semiconductor device including a silicon wiring substrate 2 composed of silicon substrate 8a and a multilayer wiring structure 8b formed on the silicon substrate 8a and formed of silicon oxide insulator layers and aluminum conductor layers. (col. 4, lines 30-34). Silicon substrate 8a provides mechanical support, and is a material that can be oxidized to form silicon oxide insulator layers as described. Substrate 8a is not copper, nor a metallic conductor, and is not described as a thermal element of the module, nor is it part of the heat-sinking apparatus. Kurokawa describes cooling provided by heat sink 45, see Figure 6. A rear surface (namely a top surface in FIG. 6) of the semiconductor device chips 42 is integrally bonded through a solder layer 44 of Sn_{96.5}Ag_{3.5} to a copper-tungsten heat sink 45. (Col. 6, lines 60-64).

Honda describes a flip chip type semiconductor device that employs a multilayer wiring structure: A flip chip type semiconductor device according to the present invention comprises a multilayer wiring layer having a multilayer wiring structure; a substrate consisting of one of an insulating substrate and a multilayer wiring substrate having penetrating holes embedded with a conductive material; a bonding agent film interposed between the multilayer wiring layer and said substrate, and bonding the multilayer wiring layer to said substrate; and a semiconductor chip mounted on said multilayer wiring layer [0031].

New Claim 37 is different than the canceled claims by calling for an interconnection circuit board for use with electronic components comprising a copper substrate, a dielectric layer formed atop the copper substrate, a copper trace layer having a plurality of distinct copper traces disposed atop the dielectric layer and terminals provided at ends of at least some of the copper traces for permitting electrical communication with the electronic components.

The use of a copper substrate, as called for in Claim 37, is not disclosed in Forehand et al. Nor does Kurokawa disclose a copper substrate. In FIG. 2 thereof, wiring substrate 9a is aluminum nitride, and again, not part of the heat-sinking apparatus. In the description accompanying FIG. 5: Thus, the heat generated in the semiconductor device chips 32 is transferred through the head conductive bonding layer 34 and the alumina nitride substrate 35 to the radiator fin block 38, so that the semiconductor device chips 32 are cooled by the radiator fin block 38 (Col. 6, lines 49-53). Clearly substrate 35 of Kurokawa is not copper. Nor does Honda disclose a copper substrate.

New Claims 38-40 depend from Claim 37 and are patentable for the same reasons as Claim 37 and by reason of the additional limitations called for therein.

New independent Claim 41 is patentable for reasons similar to Claim 37 by calling for an electronic module comprising a copper substrate, a dielectric layer formed atop the copper substrate, a copper trace layer having a plurality of distinct copper traces disposed atop the dielectric layer, terminals provided at ends of at least some of the copper traces for permitting electrical communication with the electronic components and an electronic component attached to at least one of the terminals.

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New Claims 42-48 depend from Claim 41 and are patentable for the same reasons as Claim 41 and by reason of the additional limitations called for therein.

The title has been amended to more clearly define the claimed invention.

Based on the foregoing, Applicant submits that Claims 37-48 are in a condition for allowance. An indication of the same is therefore respectfully requested.

Respectfully submitted,


Peter C. Salmon

Customer No. 32940
DORSEY & WHITNEY LLP
US Bank Centre
1420 Fifth Avenue, Suite 3400
Seattle, WA 98101-4010
Telephone No.: (650) 857-1717
Facsimile No.: (650) 857-1288
4813-5737-1393\1